What is claimed is:

1. A method for fabricating an integrated liquid chromatography/electrospray ionization microelectromechanical device, comprising the steps of:

a) providing a silicon substrate having a first surface and an opposing second surface;

b) forming a first silicon oxide layer on on one of said first surface and said second surface of said substrate,;

c) doping said one of said first surface and said second surface with a dopant of a same conductivity type as a conductivity type of said substrate;

d) forming a silicon nitride film on said first silicon oxide layer;

e) patterning and etching said silicon nitride film to form at least one silicon nitride contact area on said first silicon oxide layer;

f) oxidizing said substrate, after step (e), to increase said first silicon oxide layer;

g) forming a second silicon oxide layer on the surface opposing said one of said first surface and said second surface and coating a first photoresist layer on said second silicon oxide layer;

h) defining a first pattern on said first photoresist layer, said first pattern including a separation channel, a separation channel terminus, and a plurality of separation posts;

i) transferring said first pattern onto said second silicon oxide layer;

j) removing said first photoresist layer;

k) coating, defining, and transferring a second pattern consisting of a fluid reservoir and a first portion of a nozzle channel onto said second silicon oxide layer when said first pattern does not include said fluid reservoir;

otherwise, coating and defining said second pattern onto said second surface when said fluid reservoir is also included in said first pattern;

l) etching said second pattern into said silicon substrate;

m) coating, defining, and transferring a third pattern onto said first silicon oxide layer, said third pattern consisting of an introduction channel and a second portion of said nozzle channel, said third pattern being aligned on said first silicon oxide layer such that said second portion and said first portion of said nozzle channel are substantially axially aligned, and such that said fluid reservoir and said introduction channel are substantially aligned;

n) removing all photoresist provided in coating, defining, and transferring said third pattern;

o) coating and defining a fourth pattern onto said first silicon oxide layer, said fourth pattern consisting of an introduction channel, a second portion of said nozzle channel, and a recessed area surrounding an unrecessed area, wherein a nozzle is defined by said nozzle channel within said unrecessed area;

p) etching, after the step of defining said fourth pattern, said third pattern into said silicon substrate for a first period of time;

q) transferring said fourth pattern onto said first silicon oxide layer;

r) etching simultaneously, after the step of transferring said fourth pattern, said third and fourth patterns for a second period of time;

s) removing at least all photoresist layers which occlude said first pattern;

t) etching said first pattern into said silicon substrate;

u) forming, after step (t), an isolation layer on all silicon surfaces of said silicon substrate;

v) attaching, after step (u), a cover substrate to said separation surface of said silicon substrate;

w) removing, after step (v), said silicon nitride from said at least one silicon nitride contact area and removing any of said pad oxide beneath said at least one silicon nitride contact area, thereby forming at least one contact area on said first surface; and

x) depositing a metal on said at least one contact area.

2. A method according to claim 1, wherein said isolation layer is an electrical isolation layer.

3. A method according to claim 1, wherein said isolation layer is a biocompatibility isolation layer.

4. A method according to claim 1, wherein said etching in at least one of steps (e), (l), (p), (r), and (t) is performed by dry etching.

5. A method according to claim 1, wherein said step of removing said silicon nitride is performed by wet etching in hot phosphoric acid.

6. A method according to claim 1, wherein said step of removing said silicon nitride and said pad oxide is performed as an unmasked etch by reactive ion etching.

7. A method according to claim 1, further comprising shadow masking, before step (w), said at least one silicon nitride contact area and wherein said step of removing said silicon oxide and said oxide is performed by reactive ion etching.

8. A method according to claim 1, wherein step (c) is performed before step (d).

9. A method according to claim 1, wherein step (c) is performed after step (w) and before step (x).